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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,627	07/21/2003	Luan C. Tran	MI22-2358	6592
21567	7590	01/26/2006	EXAMINER	
WELLS ST. JOHN P.S. 601 W. FIRST AVENUE, SUITE 1300 SPOKANE, WA 99201			GEYER, SCOTT B	
			ART UNIT	PAPER NUMBER
			2812	

DATE MAILED: 01/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/624,627	Applicant(s) TRAN, LUAN C.	
	Examiner Scott Geyer	Art Unit 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 62-67 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 62 and 64-66 is/are rejected.
- 7) ☒ Claim(s) 63 and 67 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>112305, 011206</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 26, 2005 has been entered.

Information Disclosure Statement

The references cited within the IDS documents received on November 23, 2005 and January 12, 2006 have been considered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 64 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 64 recites planarizing "the material" of claim 62. However, Claim 62 refers to a "dielectric material", a "material" which is metal or a metal nitride and a semiconductive "material". It is unclear to the examiner as to which material is meant to be planarized by claim 64. For purposes of examination, it will be assumed that the material planarized in claim 64 is the gate material.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 62, 64 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin (5,904,530) in view of Buynoski (6,518,113 B1).

As to **claim 62**, Shin teaches forming a layer of dielectric material 12 over a silicon semiconductor substrate 11, patterning the dielectric material using a photolithographic process to form two blocks which are separated by a first gap, and each block has a sidewall within the gap (see fig 3a); formation of a pair of spacers 13 within the gap wherein the spacers have lateral edges which are separated by a second gap, and the second gap is narrower than the first gap (see figure 3b); implantation of a dopant into the semiconductor substrate 11 to form a doped region 19 (see figure 3b); removal of the spacers and depositing a gate material 15 within the gap (see figure 3c). Shin does not teach the gate material to be a metal or metal nitride. Rather, the gate material of Shin is polysilicon. However, Buynoski teaches a similar fabrication process detailed in figures 3-7, wherein the gate material 28b in figure 7 is a metal (see column 4, lines 39-51). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method of Shin with a metal gate material as taught by Buynoski since metal is an extremely durable material, is conductive and is easily applied to fill in gaps.

As to **claim 64**, Shin teach planarization of the gate material, as shown in figure 3c. the material is etched back and is planar as is plainly shown in the figure. Buynoski also teach planarization of the gate material, as shown in figure 7 and column 4, line 39 et seq.

As to **claim 65**, Buynoski teaches tungsten as the gate material, in column 4, line 32.

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Claim 66 rejected under 35 U.S.C. 103(a) as being unpatentable over Shin (5,904,530) and Buynoski (6,518,113 B1) as applied to claim 62 above, and further in view of examiner's official notice.

As to **claim 66**, Shin and Buynoski both teach implanting a dopant. However, neither reference explicitly teaches indium used as the dopant. However, it is notoriously well known in the art to use indium as a dopant species and it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Shin and Buynoski with indium as a dopant since indium can be easily controlled during implanting due to its large atomic weight.

Allowable Subject Matter

Claims 63 and 67 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Geyer whose telephone number is (571) 272-1958. The examiner can normally be reached on weekdays, between 10:00am - 6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 1/19/06

Scott Geyer
January 19, 2006